

PROGRESS REPORT

DOUGLAS FIR FLATHEAD STUDY

YOSEMITE NATIONAL PARK

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BERKELEY, CALIF.  
APRIL 8, 1936



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE  
WESTERN DIVISION, BRANCH OF FORESTRY  
333 HILGARD HALL, UNIVERSITY OF CALIFORNIA  
BERKELEY, CALIFORNIA

BUREAU OF  
Entomology and Plant Quarantine  
RECEIVED  
☆ APR 14 1936 ☆  
Forest Insect Laboratory,  
BERKELEY, CALIF.

✓	IMM	
✓	KAS	
✓	JEP	
✓	GRS	
✓	PCJ	
✓	JWB	
✓	JSY	
✓	ASW	

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This is a brief summary of the results of the rearing done on this project during the past two years. No attempt has been made to make this a complete report as many of the insects will have to be sent to specialists for specific determination. The names given in the records below are tentative in many cases.\*

The study was begun in order to find out whether the proper trees were being treated during control work. Certain arbitrary standards had to be established when control work was started during the winter of 1933-4, as not only was this the first project ever undertaken to control this beetle, but also its seasonal history had never been worked out.

Melanophila irrorandi, the Douglas fir flathead, in Douglas fir in Yosemite differs considerably from specimens reared from the true firs which it also attacks. Specimens from Douglas fir in Yosemite are more robust, averaging 13 mm. (3/5") in length, and are bronzy in color without spots on the wing covers. Specimens from the true firs

\*For a brief summary of the history of the infestation and the amount of control done, see pp. 15, 14, 18 and 19 of "Forest Insect Problems of the Yosemite National Park" by J. E. Patterson. 1935. Mimeographed.



in Yosemite are smaller, averaging 11 mm. They are usually a bluish black and generally bear two to six brownish spots on the wing covers.

On March 19, 1934, two infested Douglas fir trees (trees #1 and #11) east of Mirror Lake were selected as being representative of the infestation, and a tree cage placed on each one of them. The attached photograph shows one of these cages in place.

Tree #1 was typical of the type of tree which was green the previous year but was, at the time of caging, beginning to show considerable fade from the attack of the beetle which had occurred some time in 1933. The foliage up to 25 ft. was red to sorrel; from this height upward the needles were sorrel to green, though most of the needles had fallen from the extreme tips of the twigs. Tree #11 was typical of trees that had been attacked at least two years previously. It was estimated that this tree was attacked in June 1932. The needles had fallen from all but the lowermost branches where a few scattered red needles remained. There was one smaller limb on the south side at a height of about 40 ft. that still had a few apparently greenish needles. Small twigs at the tips of the branches had not yet fallen off.

The list following records the insects as they emerged from these two trees for the past two years:

Summary of Emergence Records from Tree Cages\*Date of  
collections

Tree #1 and #11 together\*\*

Remarks

1934  
April 13(29.927 m ft) (26.951 m ft.)<sup>†</sup>

2 Melanophila drummondii  
 1 Pityophthorus  
 1 Xorides ♂  
 4 Ichneumonids, 2 ♀s, 2 ♂s  
 2 Braconids, 1 ♀, 1 ♂  
 1 Temnochila  
 1 Cuculus  
 1 Nitidulid  
 175± Tingids

April 24

1 Araclis debilis (None from tree #11)

May 5

2 M. drummondii  
 4 Odontaulacus, 1 ♀, 3 ♂s  
 9 Xorides, 3 ♀s, 6 ♂s  
 8 Ichneumonids, 3 ♀s, 5 ♂s  
 13 Braconids, 7 ♀s, 6 ♂s (3 species)  
 1 Araclis mediorima  
 Tingids (indefinite number)  
 1 Cuculus clavipes  
 1 Melyrid  
 1 Anthocorid

Tree #1

Tree #11

May 26

31 M. drummondii  
 121 Odontaulacus, 45 ♀s,  
 69 ♂s, 7 undetermined  
 2 Xorides  
 2 Ichneumonids (2 species)  
 6 Braconids, 2 ♀s, 4 ♂s

6 M. drummondii  
 1 Odontaulacus ♀  
 6 Xorides, 5 ♀s, 1 ♂  
 2 Braconids, ♂s (2 species)  
 1 Arealid nymph  
 3 Schecold bees  
 7 Tingids  
 1 Ceryatid  
 7 "Mirids"  
 10 Corticaria  
 2 Coccinellids  
 1 Pityophthorus  
 1 Melyrid  
 3 Nitidulid larvae  
 3 Thysanura


\*The various collections were made by Asst. Foresters Ernst and  
 Carlson and the writer.

\*\*Through oversight material from both cages was placed together.

† measured by S.T. Carlson see letter of June 20, 1936.



Date of collection	Tree #1	Tree #11	Remarks
June 28	27 <u>M. drummondi</u> 28 <u>Odontaulacus</u> , 10 ♀ s, 1 ♂ s 1 <u>Xorides</u> ♂ 1 Braconid ♀ 1 <u>Tanebroides</u> 1 Nitidulid 2 Lepidopterous larvae	12 <u>M. drummondi</u> 1 Braconid ♀ 1 <u>Xeris merrisoni</u> ♀ 1 <u>Corticaria</u> 1 <u>Thysanura</u> 1 Aradid (nymph)	
July 6	9 <u>M. drummondi</u> 12 <u>Odontaulacus</u> , 4 ♀ s, 6 ♂ s, 2 unident. 2 Braconids 1 Anthocerid 1 Staphylinid 2 <u>Cossomus</u> 5 <u>Corticaria</u>	10 <u>M. drummondi</u> 1 <u>Xorides</u> 5 Aradids 8 Tingids 2 <u>Cossomus</u> 8 <u>Thysanura</u>	9 fresh cones on inside of cage 1, only 1 above cage. <u>Odontaulacus</u> very common on base of trees.
July 25	6 <u>M. drummondi</u> 18 <u>Odontaulacus</u> ? 9 ♀ s, 9 ♂ s 5 Braconids, 2 ♀ s, 1 unident. 1 <u>Corticaria</u> 7 <u>Cossomus</u> 2 Tingids 1 <u>Xyleborus</u> 3 5 unident. specimens	1 <u>M. drummondi</u> 1 <u>Tanebroides</u> 1 Tingid	
July 27	3 <u>Cossomus</u> 1 Anthocerid	5 <u>M. drummondi</u>	
Aug. 22	2 <u>M. drummondi</u> 1 Braconid 1 Ichneumonid 1 <u>Corticaria</u> 1 <u>Aradus debilis</u> (indef- inite number) 1 <u>Termachila</u> 1 "Melandryid"	1 Aradid	
Sept. 8	4 Aradids 2 Scolytids 1 <u>Bius</u>	2 Tingids	

Date of Collection	Tree #1	Tree #11	Remarks
Nov. 30	5 Aradid adults 1 " nymph 1 <u>Xyleborus</u> 1 <u>Ennearthron</u> 1 <u>Corticaria</u> 1 Hemipteron (undetd.)		
Dec. 23	1 <u>Corticaria</u> Cecidomyid larvae (indefinite number)	1 few cecidomyid larvae	
1935			
April 24	1 <u>Aradis debilis</u>	1 <u>M. drummondii</u>	
May 15.			Nothing in containers
June 24 <sup>th</sup>			Containers pulled off
July 15	6 <u>Platydemus</u> larvae 1 <u>Cossomus granatus</u> 1 <u>Golydium lineola</u> 1 Lepidopteron	2 <u>Xeris morrisoni</u> 	
Aug. 10	1 <u>Odontaulacus</u> ♀ 1 <u>Cossomus granatus</u> 12 <u>Ennearthron</u> 1 Lepidopteron 2 Braconids 6 <u>Platydemus</u> larvae	1 <u>Aradus medioximus</u> 1 <u>Platydemus</u>	
Sept. 27	58 <u>Platydemus</u> 1 <u>Diceros</u> 1 <u>Ibalia</u> 1 Braconid (black ventér) 1 <u>Cossomus</u> 1 Formicid 2 Braconids 1 Proctotrypid 8 <u>Ennearthron</u>	1 <u>Platydemus</u> 1 <u>M. drummondii</u> 1 <u>Xeris morrisoni</u> 1 <u>Serravalma</u>	



An analysis of the emergence records shows that M. drummondii continues to emerge from trees it has attacked for a period of at least three years but that the main emergence occurs the first year after the attack. It also shows that the policy adopted at Yosemite of treating any trees that still have any red needles was sound for there was found to be a considerable emergence the second year after attack. During control work, consequently, this policy should be continued.

Odontaulacus, which is apparently the most important parasite of M. drummondii, was found to be an internal parasite which lays her eggs either in the eggs of the beetle or the early stage larvae, probably the latter. Most of the other insects listed are not of sufficient abundance to be important, or are purely secondaries.

Donald DeLeon  
Entomological Technician



Photograph of cage on Tree #1  
showing type used for collection of  
insects as they emerged from caged portion